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Elk Creek Dam
Fish Passage Corridor

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Project Location

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Project History

- **Project authorization**
  - Part of 1962 Flood Control Act (three projects)
  - Lost Creek completed in 1976
  - Applegate completed in 1980
- **Elk Creek construction**
  - Initiated in 1971 (multi-purpose & flood control)
  - Deferred in 1977 due to lack of state support
  - Restarted in 1985 after review by Corps Water Policy Review Board
- **Project stopped by injunction in 1988 at 1/3 of design height**

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Project History

- **1988-1995 Corps works to restart construction**
  - Petitioned court to remove injunction to allow Congress to decide whether to complete the project
  - Prepared additional environmental documentation, including a "no pool alternative" (2nd EIS supplement)
- **1995 Appeals Court decision**
  - Left injunction against project completion in place
  - Required comprehensive review of a wide range of issues in additional environmental documentation
- **1995 Corps notifies Congress**
  - Will not perform studies required to remove injunction
  - Will implement long-term management plan to preserve majority of federal investment

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Fish Passage Issue

- Initial project plan included eliminating Elk Creek's wild fish run
- Called for hatchery production to replace the wild run
- 1988–1991
  - Juvenile salmon pass downstream through diversion tunnel
  - No adult salmon migrating upstream
- 1992 - temporary fish trap constructed to collect fish for hatchery brood stock

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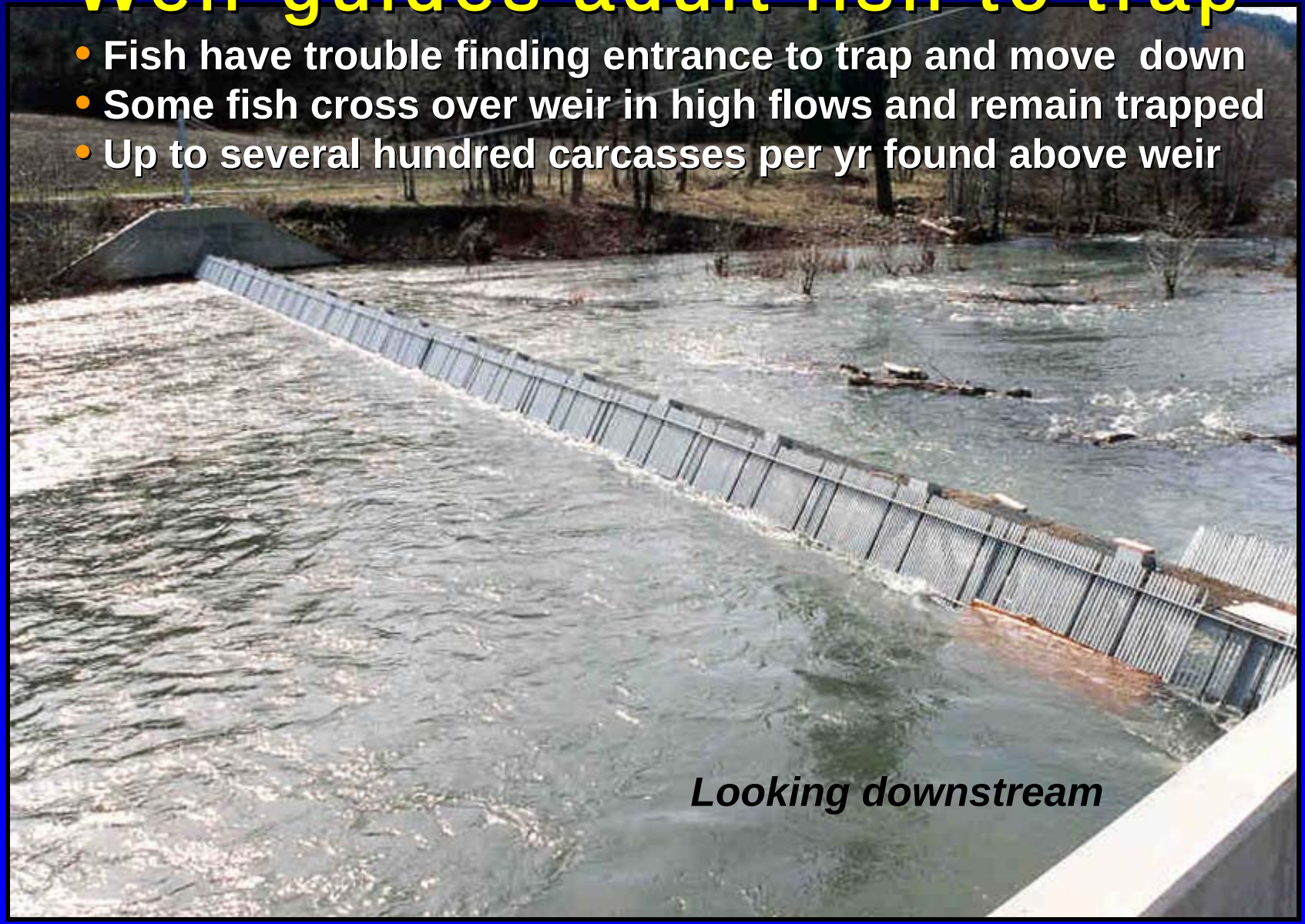
Fish Passage Issue

- Coho salmon were listed as threatened under Endangered Species Act in May 1997, raising level of concern and obligation for fish passage
- 1997 Congressional Appropriations Act requires Corps to provide “passive” fish passage
- Temporary Trap
  - Built to last five years
  - Increasing weir and pump failures

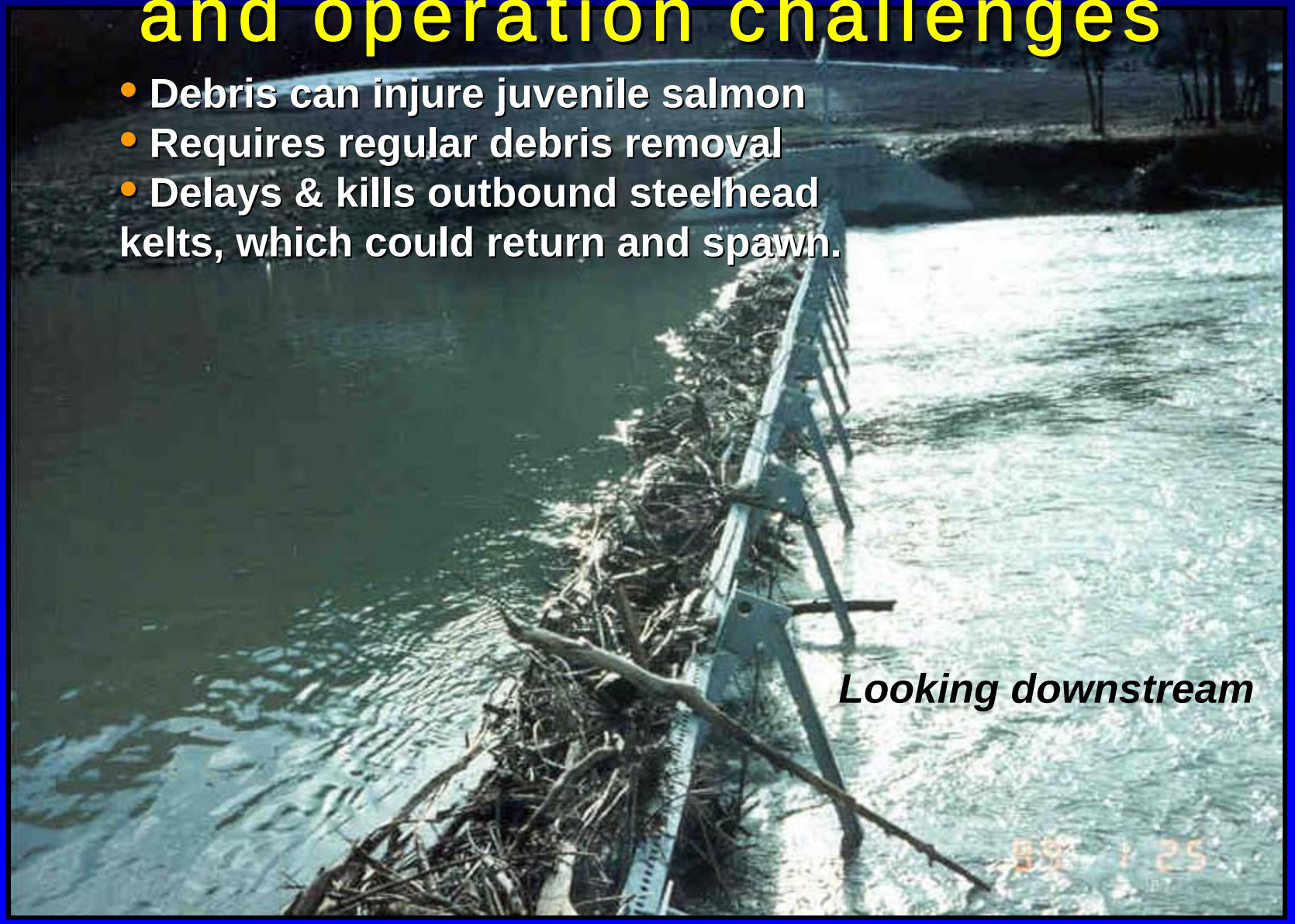
Weir guides adult fish to trap

- Fish have trouble finding entrance to trap and move down
- Some fish cross over weir in high flows and remain trapped
- Up to several hundred carcasses per yr found above weir



Weir faces yearly maintenance and operation challenges

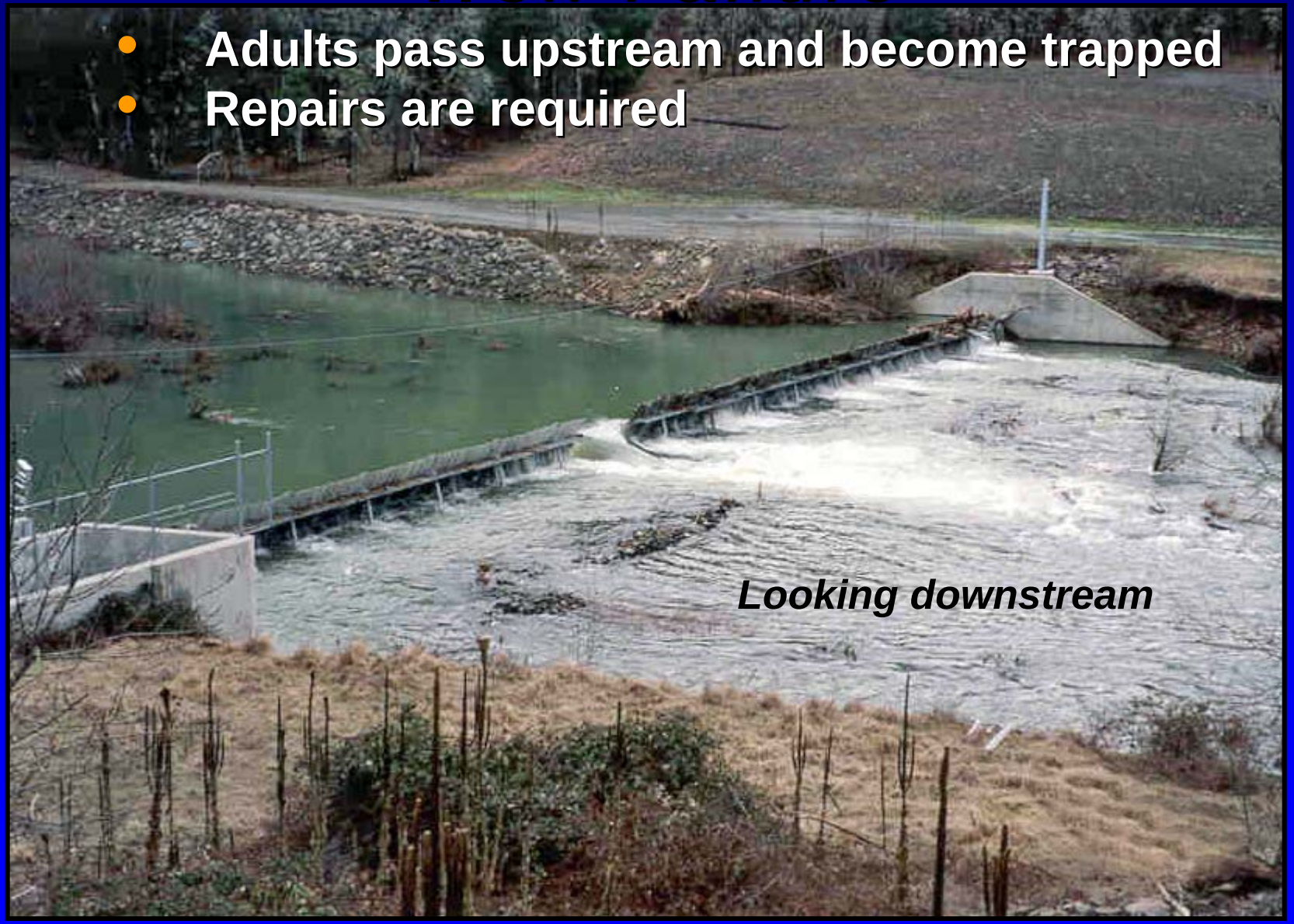
- Debris can injure juvenile salmon
- Requires regular debris removal
- Delays & kills outbound steelhead kelts, which could return and spawn.



Looking downstream

Weir Failure

- Adults pass upstream and become trapped
- Repairs are required



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Studies of Fish Passage Alternatives with an Incomplete Dam

- 1998 EA for passive passage (notch) analyzed 4 alternatives
  - Public comment considered
  - Corps issued FONSI (Finding of No Significant Impact)
  - Project stopped due to funds constraints
- 2000 Major Alternative Study (Design Memo No. 10, Supplement No. 4)
  - Six alternatives screened to four
  - Included analysis of four alternatives and new trap & haul
  - Notch recommended

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Cost Comparison

(Design Memorandum No. 10, Supplement No. 4)

- **New Trap & Haul**
  - Construction @ $ 8.4 M
  - 50 yr annual @ $ 1 M
  - 10 yr annual @ $ 1.67 M
- **Passage Corridor**
  - Construction @ $ 7.1 M
  - 50 yr annual @ $ 596 K
  - 10 yr annual @ $ 1.1 M

NOTE: Above data is at 1998 Price Levels and interest rates. Fish passage corridor costs less to build, about 60% of trap and haul over 50 years, and slightly less than trap and haul at 10 years

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Biological Comparison

(Design Memorandum No. 10, Supplement No. 4)

- **Permanent (new) trap & haul facility**
  - 1997 ESA states preference for “passive” passage
  - Increases:
    - stress/injury/mortality from handling fish
    - potential for trap rejection (fish don’t go in)
    - juvenile passage through debris
    - risk of system failure
- **Fish passage corridor & stream restoration**
  - Lowest risk and eliminates trap & haul issues

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Studies of Fish Passage Alternatives with an Incomplete Dam

- 2001 draft Supplemental EA for Notch analyzed 4 alternatives
  - Notch & stream restoration
  - Temporary trap & haul
  - New trap & haul
  - Diversion tunnel
- 2001 Endangered Special Act consultation (BA/BIOP) short listed to two alternatives
  - Notch
  - New trap and haul
- Work stopped due to funds constraints

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2007 Environmental Assessment

(picking up where we left off in 2001)

- FY 2007 funds appropriated to resume studies
- Public comment - with focus on the two alternatives
  - Passage corridor & stream restoration (Proposed Action in 2008)
  - Replacement of trap & haul (the No Action alternative)
  - Written comments by November 5, 2007 to:

    District Engineer
    US Army Corps of Engineers, Portland
    Attn: CENWP-PM-E
    PO Box 2946
    Portland, OR 97208-2946

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Proposed Action
Fish Passage Corridor

- Remove part of dam and spillway
  - 50,000 cy of RCC
  - 15,000 cy of conventional concrete
- Re-align 5,000 ft of Elk Creek channel to original
  - 275,000 cy of cut and fill
  - 1,000 cy or rock excavation
- Build 14,000 cy training wall
- Restore streambed (plantings, boulders, ect.)
- Implementation in Fiscal Year 2008

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2008 Authorization & Appropriations

- Congressional report language which prohibited notch was deemed advisory and not statutory
- FY 2008 $10M appropriated for project construction
- Construction procurement initiated
  - Up-date Design Document
  - Up-date Request for Proposal
  - Complete Value Engineering (October 2007)
  - Advertise contract (December 2007)
  - Bids were received (January 2008)

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Design/Build Contract

- Contract awarded in February 2008 to:
  McMillen - McDougall
  20182 SW 112th Ave
  Tualatin, OR 97062
- On-site construction started May, 2008
- Design was completed June, 2008

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Design Objectives

- Provide and maintain fish passage from 1 cfs to 5,000 cfs
- Replicate natural conditions
- Restore or replace existing dikes (rock weirs)
- Provide resting areas for fish
- Remove solid and/or hazardous waste

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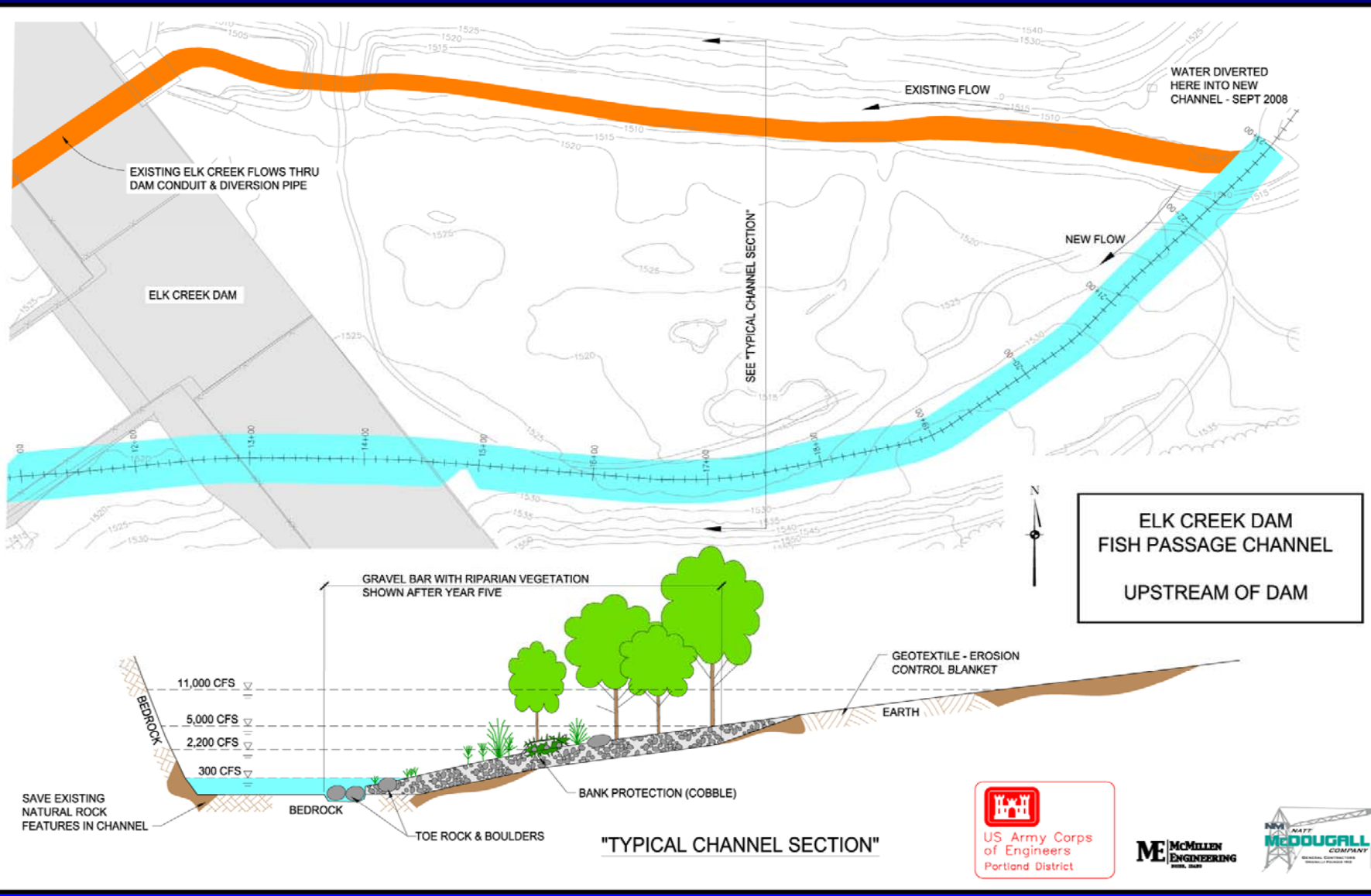
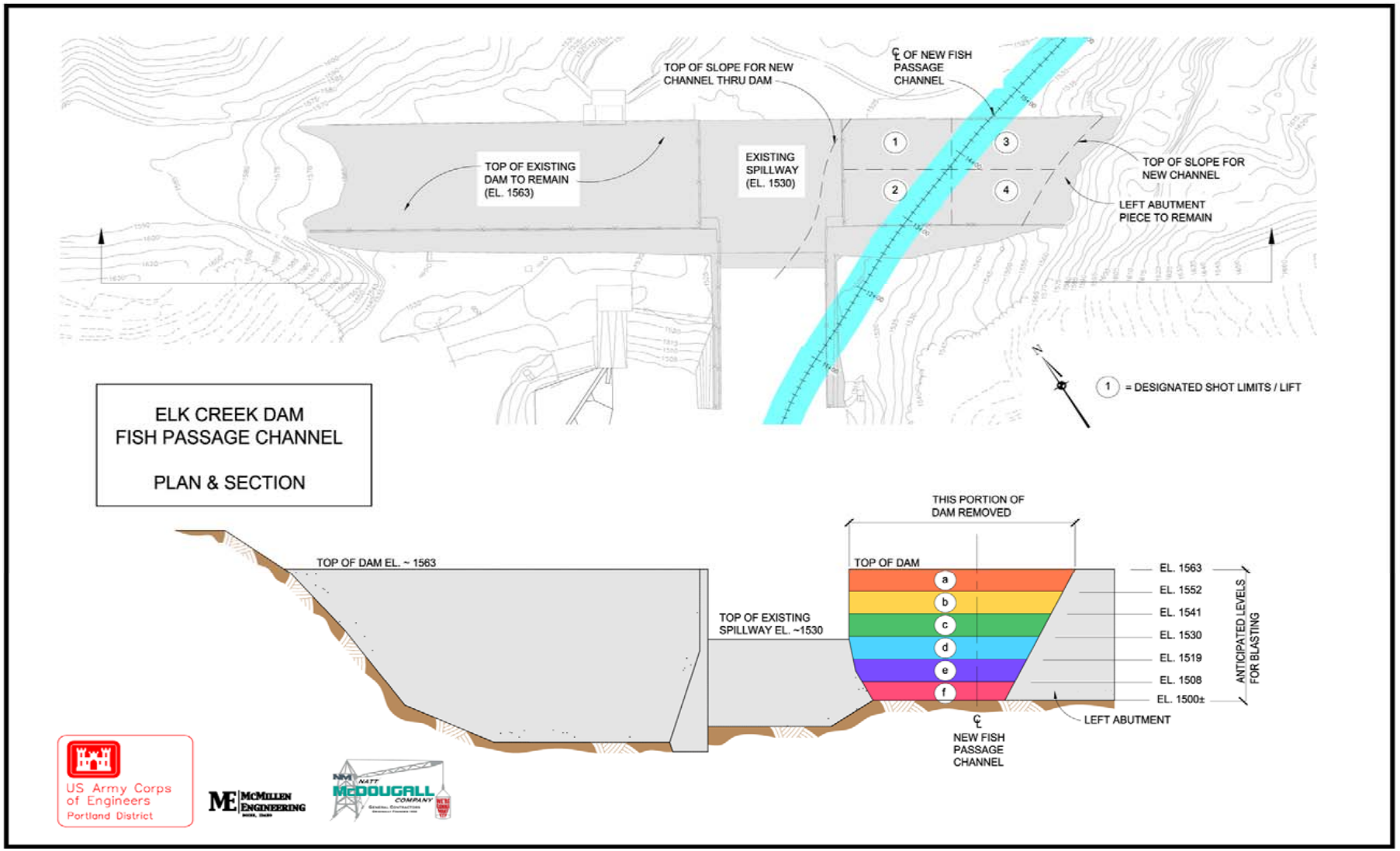
Major Features

- Re-grade stream below Dam
- Notch through the RCC dam
- Re-grade stream up-stream of dam
- Care and diversion of water
- Stream channel design
- Bank stabilization

Elk Creek Dam Fish Passage Corridor - upstream



Elk Creek Dam Fish Passage Corridor – Dam Plan & Section



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Construction Sequence

- Haul roads, bridges, access
- Care and diversion of water
- Fish salvage operations
- Channel excavation
- Dam notch excavation
- Construct channel features
  - Gravel blanket, boulders, rock weirs, woody debris
  - Rip rap, geotextile blanket, plantings
- Diversion thru new channel

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Upstream Before & After

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Downstream Before & After

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Aerial View

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Summary

- Partially complete Elk Creek Dam
- ESA listing of Coho & fish passage issue
- Multiple studies and ESA consultation
- Fish Passage Corridor
  - most biologically sound
  - least cost solution w/ incomplete dam
  - preserves majority of federal investment in dam
- Phase I substantially complete in FY 2008
- Phase II continued restoration in FY 2009